

Remarks

Claims 19 - 25 are pending, previously submitted claims 10 - 18 being cancelled by this amendment.

Claims 10 - 18 were rejected under 35 USC 103(a) as being unpatentable over United States Patent No. 3,896,670 to Converse et al. in view of DE 19857329 to Wildgen et al, and further in view of United States Patent Application 2002/0157448 to Hirai et al. To the extent that these rejections are pertinent to new claims 19 - 25, they are respectfully traversed.

Converse discloses a variable venturi meter in the context of an apparatus for testing carburetors, and not, contra the present patent application, to an apparatus or method for the calibration of sensors. Hence it also cannot teach sensor calibration by a process that includes (as is set forth in the claims) continuously measuring a mass flow rate according to a predetermined time-displacement profile by displacing a spike/mandrel continuously on that basis. The process of calibrating a sensor is much more sophisticated than a simple function test. Calibration involves determining the functional relationship between mass flow and a sensor's signal output, which simply is not the concern of Converse. Therefore, one interested in the calibration of sensors simply would not have cause to look to the carburetor art and thus not to this non-analogous reference, and it is not proper to modify it as the Examiner has with secondary art to match the claimed structure and method. The only motivation here to modify Converse with teachings taken from the secondary references (Wildgen et al. and Hirai et al.) is this patent application. Of course, such hindsight reconstruction is not proper. Simply put, one of ordinary skill in the art would not think to transform the carburetor testing

apparatus of Converse et al. into the Applicant's method and apparatus for calibrating sensors after studying these references.

It is further noted that Wildgen, as the Examiner noted, does not disclose a nozzle, but a throttle. This is based on a master (Referenz Massenstrommesser 5) and slave (Prüfling 3) relationship, and is further removed from the instant invention. In Wildgen, the slave is calibrated in dependence upon the proper functioning of a very accurate master. This is a very slow method of calibration and the accurateness of calibration of the slave depends directly on the quality of the master. The mass air flow by Wildgen is adjusted by a critical subsonic air flow in its aperture (DE198 57 329 A1, col1, line 26). This is in contrast to the instant invention, in which the air flows through the nozzle at the speed of sound (supercritical operation) and the air flow depends directly on the geometry of the nozzle, because one can enhance the air pressure, as much as you would like, on the high pressure side of the nozzle without increasing the air flow through the nozzle. The sonic speed is the limit. In other words if one ensures the sonic speed in the nozzle (supercritical air flow) one obtains a very simple relationship between nozzle geometry and air flow, and this relationship is extremely accurate. That is a big advantage in calibration technique for mass air flow sensors. The calibration becomes fast with a high accuracy. The Wildgen approach simply cannot provide this.

Newly submitted claims 19 and 25 further recite apparatus and method involving continuously changing mass air flow during sensor calibration and the continuous measurements of the mass air flow which are also not taught or suggested by the cited combination of references.

For at least the aforementioned reasons, the Applicant respectfully believes that the rejections are improper and should not be maintained.

Conclusion

In view of the foregoing, it is respectfully submitted that the application is in condition for examination and reconsideration and such action is respectfully requested.

FEES

This response is being filed with a petition for a two-month extension of time and the required fee paid concurrently herewith via credit card authorization. No further fee is believed to be due. If, on the other hand, it is determined that further fees are necessary or any overpayment has been made, the Commissioner is hereby authorized to debit or credit such sum to Deposit Account No. 02-2275.

Pursuant to 37 CFR 1.136(a)(3), please treat this and any concurrent or future reply in this application that requires a petition for an extension of time for its timely submission as incorporating a petition for extension of time for the appropriate length of time. The fee associated therewith is to be charged to the above-mentioned deposit account.

An early and favorable action on the merits is earnestly solicited.

Respectfully submitted,
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